11-8-04

Response Under 37 C.F.R. §1.192 Appellant's Brief

oplication No. 10/056,680 aper Dated: November 5, 2005 Approxy Docket No. CV01492K



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Patent Application of:

T. Kosoglou et al.

Examiner: San-Ming R. Hui

Serial No.:

10/056,680

Group Art Unit: 1617

Filed: January 25, 2002

Atty. Docket No.: CV01492K

For: Combinations of Sterol

Absorption Inhibitor(s) with Blood : Modifiers for Treating Vascular :

Indications

MAIL STOP APPEAL BRIEF - PATENTS

Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450

ON APPEAL FROM THE PRIMARY EXAMINER TO THE BOARD OF PATENT APPEALS AND INTERFERENCES

APPELLANT'S BRIEF UNDER 37 C.F.R. § 1.192

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Chris Reichert

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1

REAL PARTY IN INTEREST

The real party in interest in this Appeal is assignee Schering Corporation, having a principal place of business 2000 Galloping Hill Road, Kenilworth, NJ 07033.

Ш

RELATED APPEALS AND INTERFERENCES

As the legal representative of Appellant, the undersigned attorney has no knowledge of any appeals or interferences directly related to this Appeal.

Ш

STATUS OF THE CLAIMS

This is an original patent application in which claims 1 and 3-48 are pending and claims 4-10, 12-17, 21-34, 38-41, 46 and 48 have been withdrawn from consideration by the Examiner. Claim 2 was canceled in the Amendment of May 10, 2004 ("Amendment").

Claims 1-3, 11, 18-20, 35-37, 42-45 and 47 (pending) were finally rejected under 35 U.S.C. § 103(a) in an Office Action mailed July 28, 2004 ("Final Office Action"). Fourteen (14) pending claims (1, 3, 11, 18-20, 35-37, 42-45 and 47) are at issue in this Appeal.

IV

STATUS OF AMENDMENTS

No claims were amended after final rejection. A copy of the claims involved in this Appeal is contained in the Appendix attached hereto.

V

SUMMARY OF THE INVENTION

Applicants have discovered compositions and combinations comprising:

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(a) at least one sterol absorption inhibitor represented by Formula (I):

$$Ar^{1}-X_{m}-(C)_{q}-Y_{n}-(C)_{r}-Z_{p}$$
 Ar^{3}
 Ar^{2}
 Ar^{2}
 Ar^{2}
 Ar^{2}
 Ar^{2}

isomers, prodrugs, or pharmaceutically acceptable salts or solvates thereof (see original claim 2 for moiety definitions); and

(b) at least one blood modifier for vascular conditions which is different from component (a) above

(original claim 2 and page 15, line 23 - page 17, line 4 of the specification).

In the Office Action of August 27, 2003, Applicants were required to elect a species of sterol absorption inhibitor, blood modifier, and third therapeutic agent. Applicants provisionally elected ezetimibe, which is represented by Formula (II) below:

Ezetimibe is the active ingredient in ZETIA® pharmaceutical formulation, which is commercially available from MSP (Merck Schering-Plough) Pharmaceuticals, Inc. <u>See</u> Response to Restriction Requirement and Election of Species of September 9, 2003 ("Response").

In the same Response, Applicants provisionally elected aspirin as the blood modifier and simvastatin (an HMG CoA reductase inhibitor) as the third therapeutic agent.

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The claimed compositions, combinations and treatment methods can be useful for treating vascular conditions and/or lowering concentration of a sterol in plasma in a mammal (page 72, lines 13-18 of the specification).

VI

<u>ISSUE</u>

Has a <u>Prima Facie</u> Case of Obviousness Under 35 U.S.C. § 103 Over EP 0720599 ("Rosenblum et al.") and WO 99/47123 ("Ullah") in view of Frei (Proc Soc Exp Biol Med. 1999 Dec; 222(3): 196-204) been Established?

VII

GROUPING OF CLAIMS

All fourteen (14) of pending claims 1, 3, 11, 18-20, 35-37, 42-45 and 47 in the present application have been treated together. Claims 35-37 (Group II) do not stand and fall together with claims 1, 3, 11, 18-20 and 47 (Group I) because they recite an additional component, namely an HMG CoA reductase inhibitor. Claims 42-45 (Group III) do not stand and fall together with the claims of Group I or Group II because they recite an additional component, an antioxidant or vitamin.

VIII

ARGUMENT

I. The Rejection

Claims 1, 3, 11, 18-20, 35-37, 42-45 and 47 have been rejected under 35 U.S.C. § 103(a) over EP 0720599 ("Rosenblum et al.") and WO 99/47123 ("Ullah") in view of Frei (Proc Soc Exp Biol Med. 1999 Dec; 222(3): 196-204).

The reasons for rejection are set forth in the Final Office Action, summarized as follows:

Rosenblum et al. disclose that compositions including the compound of Formula II can be combined with HMG CoA reductase inhibitors such as

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simvastatin to reduce cholesterol and risk of atherosclerosis (Final Office Action at page 3). Ullah teaches a composition comprising statins, such as simvastatin, in combination with aspirin, for cholesterol lowering and treating or reducing the risk of developing atherosclerosis (Final Office Action at page 3).

It is acknowledged that the primary references do not expressly teach the claimed composition comprising the compound of Formula II, aspirin and simvastatin together or that antioxidants be incorporated into such as composition (Final Office Action at page 3). Frei teaches that antioxidants such as vitamins C or E can be useful for inhibiting atherogenesis and normalizing vascular functions. (Final Office Action at page 4).

It is alleged that it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the compound of Rosenblum et al. into Ullah, which are known to be useful to reduce cholesterol level and the risk of atherosclerosis individually, into a single composition useful for the very same purpose, citing *In re Kerkoven*, 205 U.S.P.Q. 1069 (Final Office Action at page 4). Further, one of ordinary skill in the art would have been motivated to include an antioxidant since vitamin C, an antioxidant, is known to inhibit the development of atherosclerosis (Final Office Action at page 4).

II. The Prior Art

Rosenblum et al. disclose the compound of Formula II (Page 29, Ex. 6). Rosenblum et al. disclose starch-based pharmaceutical compositions including compounds of Formula I of Rosenblum et al. (Ex. A and B Page 29). Rosenblum et al. teach that the active compounds therein can be combined with HMG CoA reductase inhibitors, such as simvastatin (Page 5, paragraph 0028). Rosenblum et al. also disclose that the active compounds are useful for reducing cholesterol and the risk of atherosclerosis (claims).

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Ullah discloses the use of aspirin for reducing myocardial infarction and a statin (such as simvastatin) for lowering cholesterol and preventing or treating atherosclerosis at page 1, lines 14-18, in combination.

Frei discloses that antioxidants may inhibit atherogenesis and improve vascular function by two different mechanisms (Abstract). Lipid-soluble antioxidants present in LDL, such as vitamin C, can inhibit LDL oxidation (Abstract). Antioxidants present in the cells of the vascular wall decrease cellular production and release of reactive oxygen species (ROS), inhibit endothelial activation and improve the biologic activity of ENDO (Abstract).

II. The Required Prima Facie Case of Obviousness Under 35 U.S.C. § 103 Has Not Been Established

When making a rejection under 35 U.S.C. § 103, the Examiner has the burden of establishing a <u>prima facie</u> case of obviousness. <u>In re Fritch</u>, 23 U.S.P.Q.2d 1780, 1783 (Fed. Cir. 1992). The Examiner can satisfy this burden only by showing an objective teaching in the prior art, or knowledge generally available to one of ordinary skill in the art, which would lead an individual to combine the relevant teachings of the references [and/or the knowledge] in the manner suggested by the Examiner. <u>Id.</u>; <u>In re Fine</u>, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988).

The mere fact that the prior art could be modified does not make the modification obvious *unless the prior art suggests the desirability of the modification* (emphasis added). <u>In re Fritch</u>, 23 U.S.P.Q.2d at 1784; <u>In re Laskowski</u>, 10 U.S.P.Q.2d 1397, 1398 (Fed. Cir. 1989); <u>In re Gordon</u>, 221 U.S.P.Q. 1125, 1127 (Fed. Cir. 1984).

"The ultimate determination of patentability must be based on consideration of the entire record, by a preponderance of evidence, with due consideration to the persuasiveness of any arguments and any secondary evidence." Manual of Patent Examining Procedure, (Rev. 1, Feb. 2003) § 716.01(d) and In re Oetiker, 24 U.S.P.Q.2d 1443, 1444 (Fed. Cir. 1992).

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Claims 1, 3, 11, 18-20 and 47

Claims 1 and 47 recite a composition and therapeutic combination, respectively, comprising a sterol absorption inhibitor of Formula I shown above, isomers, prodrugs, or pharmaceutically acceptable salts or solvates thereof; and at least one blood modifier for vascular conditions which is different from the sterol absorption inhibitor.

Claim 3 depends from claim 1 and recites the compound of Formula II (ezetimibe) as the compound of Formula I.

Claim 11 depends from claim 1 and recites specific groups of blood modifiers. Claims 18-20 depend directly or indirectly from claim 1 and recite that the blood modifier is a platelet inhibitor, such as aspirin.

It is respectfully submitted that the combination of the references cited as rendering the claimed invention obvious is improper because there is no suggestion in the cited references to combine the claimed components of sterol absorption inhibitor (such as that of Formula (I) (e.g., ezetimibe)) and blood modifier such as aspirin.

Applicants wish to emphasize that claim 1 does not require the presence of a third component, such as a statin.

With respect to patentability of a composition or combination of a sterol absorption inhibitor and blood modifier such as aspirin (without the presence of a statin), Rosenblum does not suggest or disclose combinations of a sterol absorption inhibitor and blood modifier such as aspirin. Ullah does not suggest or disclose combinations of a sterol absorption inhibitor and blood modifier such as aspirin.

In Ullah, aspirin is disclosed as being useful for reducing myocardial infarction at page 1, lines 14-18, not for treating atherosclerosis. The statin in Ullah is disclosed as lowering cholesterol and treating atherosclerosis. <u>Id.</u>

In the final Office Action at pages 4 and 5, *In re Kerkoven* was cited as supporting the argument that combining the compositions of Rosenblum and Ullah, which are known to be useful to reduce cholesterol level and the risk of

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atherosclerosis individually, into a single composition useful for the very same purpose would be considered obvious.

However, the invention of claims 1, 3, 11, 18-20 and 47 is for a sterol absorption inhibitor and blood modifier such as aspirin and does not require a statin. Ullah does *not* disclose aspirin as being useful for lowering cholesterol or treating atherosclerosis. Therefore *In re Kerkoven* does not apply since Ullah does not disclose aspirin as having the same purpose as a cholesterol absorption inhibitor or HMG CoA reductase inhibitor, namely to lower cholesterol or treat atherosclerosis.

Frei does not disclose sterol absorption inhibitors or blood modifiers such as aspirin. Even if the teachings of Frei were combined with those of Rosenblum et al. and Ullah as suggested in the Final Office Action, one skilled in the art would not be motivated to provide a composition having a sterol absorption inhibitor and blood modifier such as aspirin.

Therefore, the prima facie case of obviousness based upon Rosenblum et al., Ullah and Frei has not been established and the rejection of claims 1, 3, 11, 18-20 and 47 should be reconsidered and withdrawn.

Claims 35-37

Claims 35-37 depend from claim 1 and further recite at least one HMG CoA reductase inhibitor, such as simvastatin. Thus the composition would comprise sterol absorption inhibitor, blood modifier such as aspirin, and HMG CoA reductase inhibitor, such as simvastatin.

It is respectfully submitted that the combination of the references cited as rendering the claimed invention obvious is improper because there is no suggestion in the cited references to combine the claimed components of sterol absorption inhibitor (such as that of Formula (I) (e.g., ezetimibe)), blood modifier such as aspirin, and HMG CoA reductase inhibitor.

Rosenblum et al. and Ullah provide no motivation for a triple combination of sterol absorption inhibitor, blood modifier such as aspirin, and HMG CoA reductase inhibitor. Frei only discloses antioxidants as useful for

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treating atherosclerosis and therefore is not relevant to the rejection of these claims.

Therefore, the prima facie case of obviousness based upon Rosenblum et al., Ullah and Frei has not been established and the rejection of claims 35-37 should be reconsidered and withdrawn.

Claims 42-45

Claims 42-45 depend from claim 1 and further recite at least one antioxidant or vitamin. Thus the composition would comprise sterol absorption inhibitor, blood modifier such as aspirin, and antioxidant or vitamin.

Applicants wish to emphasize that claim 1 does not require the presence of a third component, such as a statin.

With respect to patentability of a composition or combination of a sterol absorption inhibitor, blood modifier such as aspirin and antioxidant or vitamin (without the presence of a statin), Rosenblum does not suggest or disclose combinations of a sterol absorption inhibitor and blood modifier such as aspirin. Ullah does not suggest or disclose combinations of a sterol absorption inhibitor and blood modifier such as aspirin.

In Ullah, aspirin is disclosed as being useful for reducing myocardial infarction at page 1, lines 14-18, not for treating atherosclerosis. The statin in Ullah is disclosed as lowering cholesterol and treating atherosclerosis. Id.

In the final Office Action at pages 4 and 5, *In re Kerkoven* was cited as supporting the argument that combining the compositions of Rosenblum and Ullah, which are known to be useful to reduce cholesterol level and the risk of atherosclerosis individually, into a single composition useful for the very same purpose would be considered obvious.

However, the invention of claims 42-45 is for a sterol absorption inhibitor, blood modifier such as aspirin and antioxidant or vitamin. Ullah does not disclose aspirin as being useful for lowering cholesterol or treating atherosclerosis. Therefore *In re Kerkoven* does not apply since Ullah does

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not disclose aspirin as having the same purpose as a cholesterol absorption inhibitor.

Frei does not disclose sterol absorption inhibitors or blood modifiers such as aspirin. Even if the teachings of Frei were combined with those of Rosenblum et al. and Ullah as suggested in the Final Office Action, one skilled in the art would not be motivated to provide a composition having a having a sterol absorption inhibitor, blood modifier such as aspirin and vitamin or antioxidant.

Therefore, the prima facie case of obviousness based upon Rosenblum et al., Ullah and Frei has not been established and the rejection of claims 42-45 should be reconsidered and withdrawn.

Accordingly, Applicants respectfully request that the § 103(a) rejection of claims 1, 3, 11, 18-20, 35-37, 42-45 and 47 be reconsidered and withdrawn.

Respectfully submitted,

Date: November 5, 2004

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APPENDIX - Claims on Appeal

- 1. A composition comprising:
- (a) at least one sterol absorption inhibitor or pharmaceutically acceptable salt or solvate thereof or prodrug of the at least one sterol absorption inhibitor or of the salt or solvate thereof

wherein the at least one sterol absorption inhibitor is represented by Formula (I):

$$Ar^{1}-X_{m}-(C)_{q}-Y_{n}-(C)_{r}-Z_{p}$$
 Ar^{3}
 Ar^{2}
 Ar^{2}
 Ar^{2}
 Ar^{2}
 Ar^{2}

or isomers thereof, or pharmaceutically acceptable salts or solvates of the compounds of Formula (I) or of the isomers thereof, or prodrugs of the compounds of Formula (I) or of the isomers, salts or solvates thereof, wherein:

Ar¹ and Ar² are independently selected from the group consisting of aryl and R⁴-substituted aryl;

Ar³ is aryl or R⁵-substituted aryl;

X, Y and Z are independently selected from the group consisting of -CH₂-, -CH(lower alkyl)- and -C(dilower alkyl)-;

R and R^2 are independently selected from the group consisting of - OR^6 ,

-O(CO)R⁶, -O(CO)OR⁹ and -O(CO)NR⁶R⁷;

R¹ and R³ are independently selected from the group consisting of hydrogen, lower alkyl and aryl;

q is 0 or 1;

r is 0 or 1:

m, n and p are independently selected from 0, 1, 2, 3 or 4; provided that at least one of q and r is 1, and the sum of m, n, p, q and r is 1, 2, 3, 4, 5

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or 6; and provided that when p is 0 and r is 1, the sum of m, q and n is 1, 2, 3, 4 or 5:

 R^4 is 1-5 substituents independently selected from the group consisting of lower alkyl, $-OR^6$, $-O(CO)R^6$, $-O(CO)OR^9$, $-O(CH_2)_{1-5}OR^6$, $-O(CO)NR^6R^7$, $-NR^6R^7$, $-NR^6(CO)R^7$, $-NR^6(CO)R^9$, $-NR^6(CO)NR^7R^8$, $-NR^6SO_2R^9$, $-COOR^6$, $-CONR^6R^7$, $-COR^6$, $-SO_2NR^6R^7$, $S(O)_{0-2}R^9$, $-O(CH_2)_{1-10}$ - $COOR^6$, $-O(CH_2)_{1-10}CONR^6R^7$, $-(Iower alkylene)COOR^6$, $-CH=CH-COOR^6$, $-CF_3$, -CN, $-NO_2$ and halogen;

 $\ensuremath{\text{R}^{5}}$ is 1-5 substituents independently selected from the group consisting of

 $-OR^{6}$, $-O(CO)R^{6}$, $-O(CO)OR^{9}$, $-O(CH_{2})_{1-5}OR^{6}$, $-O(CO)NR^{6}R^{7}$, $-NR^{6}R^{7}$,

 $-NR^6(CO)R^7$, $-NR^6(CO)OR^9$, $-NR^6(CO)NR^7R^8$, $-NR^6SO_2R^9$, $-COOR^6$, $-COOR^6R^7$,

-COR 6 , -SO $_2$ NR 6 R 7 , S(O) $_{0-2}$ R 9 , -O(CH $_2$) $_{1-10}$ -COOR 6 , -O(CH $_2$) $_{1-10}$ CONR 6 R 7 , -(lower alkylene)COOR 6 and -CH=CH-COOR 6 ;

 R^6 , R^7 and R^8 are independently selected from the group consisting of hydrogen, lower alkyl, aryl and aryl-substituted lower alkyl; and

R⁹ is lower alkyl, aryl or aryl-substituted lower alkyl; and

- (b) at least one blood modifier for vascular conditions which is different from component (a) above.
- 3. The composition according to claim 1, wherein the sterol absorption inhibitor is represented by Formula (II) below:

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or pharmaceutically acceptable salts or solvates thereof, or prodrugs of the compound of Formula (II) or of the salts or solvates thereof.

- 11. The composition according to claim 1, wherein the at least one blood modifier is selected from the group consisting of anti-coagulants, antithrombotic agents, fibrinogen receptor antagonists, platelet inhibitors, platelet aggregation inhibitors, hemorrheologic agents, lipoprotein associated coagulation inhibitor, Factor VIIa inhibitors, Factor Xa inhibitors and combinations thereof.
- 18. The composition according to claim 11, wherein the at least one blood modifier is a platelet inhibitor.
- 19. The composition according to claim 18, wherein the platelet inhibitor is selected from the group consisting of cilostazol, clopidogrel bisulfate, epoprostenol, epoprostenol sodium, ticlopidine hydrochloride, aspirin, ibuprofen, naproxen, sulindae, idomethacin, mefenamate, droxicam, diclofenac, sulfinpyrazone, piroxicam, dipyridamole and combinations thereof.
- 20. The composition according to claim 19, wherein the platelet inhibitor is aspirin.

{W0151830.1}

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- 35. The composition according to claim 1, further comprising at least one cholesterol biosynthesis inhibitor.
- 36. The composition according to claim 35, wherein the at least one cholesterol biosynthesis inhibitor comprises at least one HMG CoA reductase inhibitor.
- 37. The composition according to claim 36, wherein the at least one HMG CoA reductase inhibitor is simvastatin.
- 42. The composition according to claim 1, further comprising at least one antioxidant or vitamin.
- 43. The composition according to claim 1, wherein the at least one blood modifier is administered to a mammal in an amount ranging from about 1 to about 1000 milligrams of blood modifier per day.
- 44. The composition according to claim 1, wherein the at least one sterol absorption inhibitor is administered to a mammal in an amount ranging from about 0.1 to about 1000 milligrams of sterol absorption inhibitor per day.
- 45. A pharmaceutical composition for the treatment of vascular conditions, diabetes, obesity or lowering a concentration of a sterol in plasma of a mammal, comprising a therapeutically effective amount of the composition of claim 1 and a pharmaceutically acceptable carrier.
 - 47. A therapeutic combination comprising:
 - (a) a first amount of at least one sterol absorption inhibitor or pharmaceutically acceptable salt or solvate thereof or prodrug of the at least one sterol absorption inhibitor or of the salt or solvate thereof; and

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> (b) a second amount of at least one blood modifier different from the sterol absorption inhibitor,

wherein the first amount and the second amount together comprise a therapeutically effective amount for the treatment of vascular conditions, diabetes, obesity or lowering a concentration of a sterol in plasma of a mammal.

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X Check	Credit Card	Money Order	Other None	3. ADDITIONAL FEES								
Deposit Acc	ount:	Larg	e Entity	Small	Entity	_						
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1. BASIC FILIN	1			1251	110	2251	55	Extension				
Large Entity Fee Fee	Small Entit	<u>· </u>		1252	420	2252	210		for reply within s			
Code (\$)	Code (\$)	Fee Description		1253	950	2253	475	Extension	for reply within t	hird month		
1001 770	2001 385	Utility filing fe		1254	1,480	2254	740		for reply within f			
1002 340 1003 530	2002 170 2003 265	Design filing for Plant filing fee		1255	2,010	2255	1,005		for reply within f	ifth month		
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1005 160	2005 80	Provisional fili	 	1403	290	2403	145	_	or oral hearing	п аррсат	340.00	
	SHRT	OTAL (1) (\$)		1451	1,510	1451	1,510	Petition to institute a public use proceeding				
	3001	OTAL (I) (W)		1452	110	2452	55	Petition to revive - unavoidable				
2. EXTRA CLA	IM FEES FO	R UTILITY AN	D REISSUE	1453	1,330	2453	665	Petition to revive - unintentional				
	Extra C	Fee fro		1501	1,330	2501	665	Utility issue fee (or reissue)				
Total Claims	-20**=	x	=	1502	480	2502	240	Design iss	sue fee			
Independent Claims	-3** =	x	=	1503	640	2503	320	Plant issue	e fee			
Multiple Dependent			=	1460	130	1460	130	Petitions t	to the Commission	ner		
Large Entity	Small Entit	<u>y</u>		1807	50	1807	50	Processing	g fee under 37 CF	R 1.17(q)		
Fee Fee Code (\$)	Fee Fee Code (\$)	Fee Description	on	1806	180	1806	180	Submissio	on of Information	Disclosure Stmt		
1202 18	2202 9	Claims in exce	ss of 20	8021	40	8021	40		each patent assig			
1201 86	2201 43	Independent cl	aims in excess of 3	1809	770	2809	385		ıbmission after fin	· '		
1203 290	2203 145	Multiple depen	dent claim, if not paid	1810	770	2810	385		dditional inventio (37 CFR 1.129(b)			
1204 86	2204 43	**Reissue inde	ependent claims over	1801	770	2801	385		or Continued Exar			
1205 18	2205 9		ms in excess of 20 and	1802	900	1802 900 Request for expedited examination of a design application						
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**or number	previously paid	, if greater; For Reis	sues, see above	*Reduced by Basic Filing Fee Paid					SUBTOTAL (3) (\$)340.00			
SUBMITTED BY (Complete (if applicable))												
Name (Print/Type		Registration No. (Attorney/Agent) 35,972				Telephone	412-471-8815					
Signature					w				Date	November 5, 20	004	

Complete if Known

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